

Inventor(s): BERGEMANN et al.
Application No.: 09/809,028
Attorney Docket No.: 021123-0277112

The applicants respectfully traverse and submit that, in view of the foregoing amendment to claim 2, this rejection is now moot. Specifically, claim 2 has been amended herein to be directed to carbon black with organic groups according having the formula -S_x-R.

In view of the foregoing, the applicants submit that claim 2 is not indefinite and therefore request the withdrawal of the rejection based upon 35 U.S.C. §112, second paragraph.

35 U.S.C. §102(b)

Claims 1-4, 6, and 7 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,159,009 (hereinafter, the '009 patent). It is the examiner's position that the reaction disclosed in the '009 patent is identical to that disclosed in the present application, therefore, the products produced using the reaction of the cited patent are identical to the products produced by the process of the present invention.

The applicants submit that the cited patent document does not anticipate the presently claimed invention. In view of the foregoing amendment, the applicants submit that claims 1 to 4 and 7 are directed to carbon blacks containing organic compounds that *do not contain silicon*. All the carbon blacks in the '009 patent are modified by organosilicons (see column 1, lines 51 to 66).

The examiner further alleges that the reaction disclosed in the '009 patent is identical to the disclosed invention. The applicants respectfully submit that this is incorrect. As disclosed in the '009 patent, the carbon black is bonded to the silane via an Si-O- bond, which is formed when the silane (RO-Si) reacts with the hydroxyl groups on the carbon black (HO-C_{black}). In the present invention, the carbon black is modified using sulfide or polysulfide bonds, i.e., R-S_x-C_{black}.

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The examiner also alleges that the fact that the organosilicon compounds bound to carbon black of the '009 patent cannot be extracted by organic solvents it is "apparent" that the organ silicon compounds are chemically bonded to the carbon material by way of a sulfide or polysulfide bridge". The applicants submit that this is also incorrect. Those of skill in the art will readily recognize that it is not "apparent" that just because an organosilicon compounds bound to carbon black cannot be extracted by a solvent means that it is "chemically bonded to the carbon material by way of a sulfide or polysulfide bridge". The organosilicon could be, and indeed in the '009 patent it is, bonded to the carbon black by an Si-O- bond, or even poly-Si-O- bonds, which is the reason that the modified carbon blacks cannot be extracted by organic solvents.

In view of the foregoing the applicants submit that as a matter of law, the '009 cannot properly anticipate the present claimed invention. Therefore, the applicants respectfully request that the rejections of the claims based upon 35 U.S.C. §102(b) be withdrawn.

35 U.S.C. §103(a)

The examiner rejected claim 5 under 35 U.S.C. §103(a) as allegedly being being unpatentable over the '009 patent. It is the examiner position that it would be obvious to add the solvent simultaneously with the organosilicon compound to the carbon black, to facilitate the removal of excess organosilicon compounds, whereby no negative effects on the reaction are expected.

The applicants submit that this rejection is now moot. Specifically and in order to expedite prosecution and without prejudice to the applicants' right to seek a similar claim in a continuing application, the applicants have canceled claim 5. Therefore, the applicants request the withdrawal of the rejection based upon 35 U.S.C. 103(a).

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III. CONCLUSION

The applicants submit that this application is in condition for all wance and a timely notice t that effect is respectfully requested. Should questions relating to patentability remain, the examiner is strongly urged to contact the undersigned at the number indicated below. Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) A carbon black having organic groups that are linked to the carbon black via at least one sulfide or [sulfide- and/or] polysulfide bridge.

2. (Amended) The carbon black with organic groups according to claim 1 having the formula -S_x-R wherein [R-S_x-R in which]

each R is independently selected from [=] alkyl, alkyl functionalized by Y, polymers, cyclic organic groups, aryl, or aryl of the formula ArY_n [with n = 1-5 functionalized by Y]

Y is selected from [=] -OH, -SH, -SO₃H, -SO₃M, -B(OH)₂, -O(CH₂-CH₂-O)_n-H, -COOH, -COOM, -NH₂, -NR₂, -N((CH₂-CH₂-O)_nH)₂, -CON((CH₂-CH₂-O)_nH)₂, [trialkoxysilyl,] perfluoroalkyl, -R², -NH₃⁺, -NR₃⁺, -SO₂-NR₂, -NO₂, -Cl, -CO-NR₂, -SS-, or -SCN, [with]

n is 1-5,

R² is selected from an aliphatic group, a cyclic organic group, an organic compound with an aliphatic and a cyclic part that is substituted or unsubstituted, branched or unbranched, chromophoric groups or dyes, [and]

x [X =] is 1-10,

M is an alkali metal, and

wherein the organic groups do not contain silicon [8].

3. (Amended) A carbon black with organic groups that is obtained by reacting carbon black with organic compounds with the general formula R-S_y-R wherein: [in which]

each R is independently selected from alkyl, alkyl functionalized by Y, polymers, cyclic organic groups, aryl, or aryl of the formula ArY_n,

Y is selected from -OH, -SH, -SO₃H, -SO₃M, -B(OH)₂, -O(CH₂-CH₂-O)_n-H, -COOH, -COOM, -NH₂, -NR₂, -N((CH₂-CH₂-O)_nH)₂, -CON((CH₂-CH₂-O)_nH)₂, perfluoroalkyl, -R², -NH₃⁺, -NR₃⁺, -SO₂-NR₂, -NO₂, -Cl, -CO-NR₂, -SS-, or -SCN,

n is 1-5,

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R² is selected from an aliphatic group, a cyclic organic group, an organic compound with an aliphatic and a cyclic part that is substituted or unsubstituted, branched or unbranched, chromophoric groups or dyes,

y is [=] 2-10 [and R has the meaning cited above]

M is an alkali metal, and

the organic groups do not contain silicon.

4. (Amended) A method of producing the carbon black of claim 3, [1 the method] comprising [the step of] reacting a carbon black and a compound of formula R-S_y-R [in which y = 2-10 and R has the meaning cited above wherein the two R groups are identical or different].